

# **FOLDABLE SHELF AND DRAWERS**

## **FIELD OF THE INVENTION**

**[0001]** The present invention relates to a foldable shelf and drawers which are easily assembled and foldable for convenience of storage and transportation.

## **BACKGROUND OF THE INVENTION**

**[0002]** Most of the shelves are fixed in sized and are assembled in front of the customers. Drawers mounted in the shelf are not foldable either so that the shelf and the drawers occupy a lot of space, which is not convenient for the customers to transport or carry. Even if some of the shelves are designed to be assembled by the customers, they are composed of some major parts that are bulky and cannot be further reduced.

**[0003]** Therefore, it is desired to have a foldable shelf that can be folded and thus occupying the minimum space such that the customers may convenient to carry or transport it.

## **SUMMARY OF THE INVENTION**

**[0004]** In accordance with an aspect of the present invention, there is provided a shelf comprising a main part composed of plurality of X-axis parts, Y-axis parts and Z-axis parts so as to form a plurality of partitions. Each X-axis part has a plurality of grooves. A plurality of connection members connects the X-axis parts and the Z-axis parts. The X-axis parts and the Y-axis parts are pivotable about the Z-axis parts. At least one rack member is located between two X-axis parts and composed of X-axis members and Y-axis members. Each Y-axis member has two ends, each having a fork portion engaging one of the grooves of the X-axis parts.

**[0005]** The present invention will become more obvious from the following description when taken in connection with the accompanying drawings, which show,

for purposes of illustration only, a preferred embodiment in accordance with the present invention.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

**[0006]** Figure 1 shows a folded main part of a shelf constructed in accordance with the present invention;

**[0007]** Figure 2 shows the main part in an extended status;

**[0008]** Figure 3 shows a rack member to be connected to the main part of the shelf of the present invention;

**[0009]** Figure 4 shows a connection member connected to a Z-axis part with an X-axis part connected to the connection member;

**[0010]** Figure 5 shows a fork portion of a Y-axis member engaging a groove defined in the X-axis part;

**[0011]** Figure 6 shows parts of a drawer in accordance with the present invention;

**[0012]** Figure 6A shows one type of connection member used in the drawer of the present invention;

**[0013]** Figure 6B shows another type of connection member used in the drawer of the present invention;

**[0014]** Figure 7 shows the drawer of the present invention;

**[0015]** Figure 8 shows a cover pivotably mounted to the drawer;

**[0016]** Figure 9 shows that the drawer is made a cane drawer;

**[0017]** Figure 10 shows the drawer receiving an inner case therein, and

**[0018]** Figure 11 shows the drawer put in a partition of the shelf of the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

**[0019]** Referring to the drawings and in particular Figures 1 to 3, a shelf of the present invention comprises a main part 1 which is composed of a plurality of X-axis parts 11, Y-axis parts 12 and Z-axis parts 13 so as to form a plurality of partitions for receiving drawers therein. A plurality of connection members 10 is used to connect the X-axis parts 11 and the Z-axis parts 13, which are connected to the Y-axis parts 12 in the embodiment shown in Figure 4, such that the X-axis parts 11 and the Y-axis parts 12 are able to pivot about the Z-axis parts 13.

**[0020]** A plurality of rack members 2 is located between the two X-axis parts 11 on top and bottom of the main part 1. Each rack member 2 has an H-shaped profile and is composed of X-axis members 21 and Y-axis members 22. Each Y-axis member 22 has two ends, each having a fork portion 220. Each X-axis part 11 has a plurality of grooves 110 so that the fork portion 220 is engageable with one of the grooves 110 of the X-axis parts 11 as shown in Figure 5 to connect the rack members 2 to the main part 1. A plurality of wheels 14 is connected to an underside of the Y-axis parts 12. A top board 15 can be fixed to the X-axis member 11 on the top of the main part 1 by screws that are not shown.

**[0021]** Referring to Figures 6 to 10, a drawer of the present invention comprises four side panels 61 and a bottom panel 62 which is connected to the side panels 61 by a plurality of U-shaped clamps 64 so as to form a storage assembly 60 as shown in Figure 7. The drawer can be made a cane drawer 6 as shown in Figure 9. As shown in Figures 6A and 6B, each connection member 63 (63') is a U-shaped member and has two legs 63a, 63b extending from a plate. An engaging protrusion 631 is located between the two legs 63a, 63b on the plate. Each side panel 61 has hollow vertical tubes 611 and each vertical tube 611 includes a U-shaped notch 612 at

two open ends thereof. The two legs 63a, 63b are used to insert in the two adjacent open ends of the vertical tubes 611 of the two side panels 61 and the notches 612 of the vertical tubes 611 of the two side panels 61 are engageable with the engaging protrusions 631.

[0022] Each U-shaped clamps 64 has an elongate support plate 641 so that when the clamps 64 clamp the bottom panel 62 and the side panel 61, the elongate support plates 641 supports an underside of the bottom panel 62.

[0023] As shown In Figure 8, a cover 65 has two side rods 651, one of which includes two insertions on two ends thereof. Two of the connection members 63' each have a passage 642 (Figure 6A) and the two insertions are respectively inserted in the two respective passages 642 of the two connection members 63' and positioned by two respective screws S (Figure 6) so that the cover 65 is pivotable about the side rod 651 connected between the two connection members 63'.

[0024] As shown in Figure 10, an inner case 66 is received in the storage assembly 60 and attaching members 661, such as Velcro, are used on outsides of the inner case 66 and insides of the cane drawer so as to position the inner case 66.

[0025] As shown in Figure 11, the shelf can be equipped with at least one drawer 6 and the main part 1 can be conveniently folded to be a flat status so that the shelf meets requirements of the trend of Do-It-Yourself.

[0026] While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.